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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/323,230	06/01/1999	YASUNORI UETANI	2185-0343P	8929

2292 7590 11/23/2001

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EXAMINER

CHU, JOHN S Y

ART UNIT	PAPER NUMBER
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1752

DATE MAILED: 11/23/2001

15

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/323,230	UETANI ET AL.	
	Examiner	Art Unit	
	John S. Chu	1752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 October 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 6-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 6-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: |

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DETAILED ACTION

This Office action is in response to the amendment received October 5, 2001.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of TACHIKAWA ET AL and AOAI ET AL.

The claimed invention is now drawn to an article comprising a substrate comprising a silicon wafer and a positive resist composition comprising a novolac resin, a radiation-sensitive quinonediazide compound and a compound of formula (I)

TACHIKAWA ET AL discloses a photosensitive composition comprising a quinonediazide compound and a sensitizer wherein the sensitizers are disclosed in column 3, lines 3-15. Applicants are directed to line 12 for the suggestion of thioxanthone as an additive aromatic ketone.

TACHIKAWA ET AL lacks an explicit example using the claimed and disclosed thioxanthone, however it would have been *prima facie* obvious to one of ordinary skill in the art of photosensitive quinonediazide containing compositions to use any of the listed aromatic ketones with the reasonable expectation of same or similar results as disclosed in TACHIKAWA

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ET AL for the formation of positive and negative images. TACHIKAWA ET AL further lacks the explicit use of a silicon wafer as a substrate to coat the photosensitive composition.

AOAI ET AL discloses a photosensitive composition comprising a siloxane polymers, a binder resin and sensitizers wherein the siloxane is a reaction product of a siloxane polymer and a 1,2-naphthoquinone diazide compound, see column 193, lines 15-17 and column 194, lines 18-30. The composition further comprises the presence of an alkali-soluble binder such as novolaks / phenol formaldehyde resins, see column 215, line 21 – column 216, line 4.

Applicants are further directed to column 232, lines 41-65 for the disclosure of other preferred components that include sensitizers, namely a thioxanthone as seen in line 55. Further in the patent applicants disclose the use of sensitizers for the acid generators that are used in the composition as seen in column 233, lines 37-51, namely thioxanthone and 2-chlorothioxanthone.

AOAI ET AL.

The composition of AOAI ET AL is further disclosed to be coated on a substrate like those recited in column 234, lines 56- 68 and on silicone wafers as seen in Examples 19-26 in column 241. This disclosure meets the substrate of a silicon wafer in the recited article of claim 1.

Like TACHIKAWA ET AL, the examples fail to explicit disclose the presence of a sensitizer as claimed such as thioxanthone, however the use of sensitizers to expand the spectral range and the activate the acid generators are well known and can easily be added to provide known and expected results.

It would have been *prima facie* obvious to one of ordinary skill in the art of photosensitive composition to first coat either of the photosensitive compositions on a silicon

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wafer as demonstrated by the examples of AOAI ET AL. It would also been *prima facie* obvious to the skilled artisan to add known sensitizers to the photosensitive composition to expand the spectral sensitivity of the compositions as well as help activate the acid generators as taught by AOAI ET AL.

Motivation is based on the desire to expand the spectral sensitivity of the composition as well as activate the acid generators.

The arguments by applicant have been carefully considered, however, are unpersuasive for removing the current rejection, thus the rejection is repeated. Applicants argue that there is no motivation to use a silicon wafer for the specified resist composition "...because the performance, when a silicone wafer is used, is totally different from the case where a silicone wafer is not used." (Page 4, lines 19-21 of the Remarks of October 5, 2001, Paper No. 14). Applicants make this assertion without the presence of supporting evidence, relying on the disclosure in AOAI ET AL to support his claim. The claim is based on the fact that examples in AOAI ET AL not using a silicon wafer fail to measure the pattern sizes, thus establishing that alternative substrates and silicone wafers are not obvious over one another, yet in AOAI ETAL, they still coat the resist on several substrates as seen in the examples. Accordingly the arguments by applicant provide no conclusion of fact that silicon wafers give improved pattern images over alternative substrates

Applicants argue, "Example 1 did not exhibit higher sensitivity than Comparative Example 1. Applicants have thus shown that the artisan of ordinary skill would not be motivated to combine the references in an attempt to expand spectral sensitivity because the combination does not increase spectral sensitivity." (Page 5, lines 14-19, Remarks of October 5, 2001, Paper

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2001, Paper No. 14). In this argument, the examiner believes applicants are confusing higher sensitivity with expanded spectral sensitivity (sensitivity to alternative light sources with varying wavelengths). Thus the rejection is maintained wherein the motivation to use sensitizers such as thioxanthone would expand spectral sensitivity to other light sources and still give the disclosed results.

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John S. Chu whose telephone number is (703) 308-2298. The examiner can normally be reached on M-F from 9:30 am to 6:00 pm.

The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3599.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



John S. Chu
Primary Examiner, Group 1700

J.Chu
November 8, 2001